

Amendments to the Claims

The following listing of claims will replace all prior versions and listing of claims in the application. Claims canceled below are canceled without prejudice or disclaimer.

Claims 1-21 (canceled)

22. (new) A method of movement control in an automation system comprising the steps of :
providing profiles that are processed on at least one of the group consisting of a
time basis and position basis; and
providing at least one of the group consisting of argument variables and function
variables associated with the profiles for use without units.
23. (new) An automation system for controlling the movement of at least one movable
machine element, the automation system comprising a profile for movement control that is
prescribed as a function of a higher degree, the profile comprising at least one command
variable and a secondary variable, the command variable representing a physical variable
that is different from the secondary variable and at least one of the variables comprising
one of the group consisting of a time-dependent variable and a location-dependent variable.
24. (new) The automation system according to claim 23, wherein the profile for movement
control is one of the group consisting of freely parameterized and created.
25. (new) The automation system according to claim 23, wherein the function of a higher
degree comprise a spline interpolation.
- 26 (new) The automation system according to claim 23, wherein the function of a higher
degree comprise a polynomial interpolation.
27. (new) The automation system according to claim 26, wherein the polynomial interpolation
comprises an order of up to at least a 6th order.

28. (new) The automation system according to claim 23, wherein the function has a trigonometric element.
29. (new) The automation system according to claim 23, wherein the profile comprises a combination of a plurality of segments, the plurality of segments of the profile formed from mathematical functions.
30. (new) The automation system according to claim 29, wherein at least two individual unconnected segments of polynomial functions associated with the plurality of segments can be connected with a transitional segment.
31. (new) The automation system according to claim 30, wherein the transitional segment comprise at least a function of a spline interpolation.
32. (new) The automation system according to 23, wherein the movement control of the at least one movable machine element is associated with an axis, wherein the axis is associated with the profile.
33. (new) A method for controlling the movement of at least one moveable machine element of one of the group consisting of an automated machine tool, an automated production machine, and an automated manipulator, the method comprising the steps of:
 - (a) providing a profile for movement control as a function of a higher degree that is one selected from the group consisting of a freely parameterized profile and a created profile;
 - (b) providing at least one command variable and a secondary variable, wherein a physical variable that is different from the secondary variable is determined as the command variable; and
 - (c) determining one of the group consisting of a time-dependent variable and a location-dependent variable as at least one of the command variable and the secondary variable.

34. (new) The method according to claim 33, wherein a spline interpolation is used as the function of a higher degree.
35. (new) The method according to claim 33, wherein a polynomial interpolation is used as the function of a higher degree.
36. (new) The method according to claim 33, wherein the function is given a trigonometric element.
37. (new) The method according to claim 33, wherein a plurality of segments associated with the profile are formed by functions, after which the profile is formed by a combination of the plurality of segments.
38. (new) The method according to claim 37, wherein at least two individual unconnected segments of polynomial functions associated with the plurality of segments are connected with a transitional segment, wherein the transitional segment comprises a function of a spline interpolation.
39. (new) The method according to claim 33, wherein a physical variable associated with the position of an axis is described by the profile.
40. (new) The method according to claim 33, wherein a physical variable associated with the movement of an axis is described by the profile.
41. (new) The method according to claim 33, wherein the profile is defined without any units.
42. (new) The method according to claim 33, wherein the profile is defined from a user program during a program processing phase.
43. (new) The method according to claim 33, wherein the profile is created by a graphic tool in an engineering system.

44. (new) An engineering system for creating a profile for movement control as a freely creatable function of a higher degree, the profile comprising at least one command variable and a secondary variable, the command variable representing a physical variable that is different from the secondary variable and at least one of the variables comprising one of the group consisting of a time-dependent variable and a location-dependent variable.

45. (new) An automation system for movement control comprising:

(a) at least one profile comprising interpolations for optimizable movement control of at least one axis of the automation system, the at least one profile having a plurality of combinations of variables stored in each of the at least one profile;

(b) at least one program for activating the at least one profile; and

(c) a memory for storing the at least one profile, wherein the at least one program accesses the at least one profile from memory for activating the profile.

46. (new) The automation system according to claim 45, wherein the interpolations comprise at least one of the group consisting of a polynomial interpolation and a spline interpolation.

47. (new) The automation system according to claim 45, wherein the at least one profile comprises a command variable and a secondary variable having a free determinability for establishing the plurality of combinations of variables stored in each of the at least one profile.

48. (new) The automation system according to claim 47, wherein the command variable and a secondary variable comprise one of the group consisting of a position, a speed, a pressure, a force, and a moment.

49. (new) The automation system according to claim 45, wherein the at least one profile comprises a plurality of segments each having a polynomial element and a trigonometric element.

50. (new) The automation system according to claim 45, further comprising at least one of the group consisting of a linear connection, a cubic spline, and a Bezier spline for connection between each successive portion of the at least one profile.